BRYSTON
OWNER'S MANUAL

Instructions For Bryston

SST Series Amplifiers

Model 7B SST

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Introduction

Thank you for choosing the **7B SST SERIES mono block Power Amplifier**.
Bryston welcomes any suggestions you may have, or comments regarding the operation of your amplifier. We consider you, our customer, to be Bryston's most important resource, and your opinion is very much appreciated.

Description 7B SST

The **7B SST** is a single channel mono 600 Watt audio power amplifier. The 7B SST selects a balanced or single ended input and a gain of 29dB(1v) or 23dB(2v) may be selected. The 7B SST includes 'soft start' power control circuitry to eliminate high inrush currents when A/C power is applied. The power up or turn-on of the 7B SST may be activated by a remote control voltage 4v to 12v ac or dc.

Warranty (see back page for details)

Shipping Box & Packing Material

Please keep the original shipping box and all packing material. This will ensure the amplifier is protected in future transport. In the unlikely event you have a problem and must return it for service *you must* use the proper packing material. Ship the amplifier only in the original packing material, as the unit is not insurable by carriers otherwise.

Installation (see rack mounting section if applicable)

Ventilation. The most important installation consideration is ventilation. The 7B SST amplifier is convection cooled. Unrestricted air-flow across the 7B SST heat sinks is a must. For this reason do not install anything directly above it. Allow 3.5' (2u) to 5" (3u) inches of space above and to the sides of this amplifier. Do not install directly above other heat generating equipment. Should your instillation conditions be constricted, then additional forced air-cooling may be necessary. Bryston can provide an optional fan package if required. Thermal shut down during operation indicates insufficient air flow, and a remedy must be found for cooling the amplifier. Provide a minimum 6" space to the rear of the amplifier for ventilation and dressing cables to and from the amplifier.
Never operate the amplifier in a vertical position.

Wiring the SST amplifier (also see rear panel description)

S*peaker wires* should be as short as practical. Use quality wire, and if runs are more than 3 meters use at least 12 gage wire. The speaker binding posts will accept wire up to 3 gage in size. Bryston offers speaker cables and amp interconnects for your application. Check our website under products/cables (www.bryston.ca) for more information.

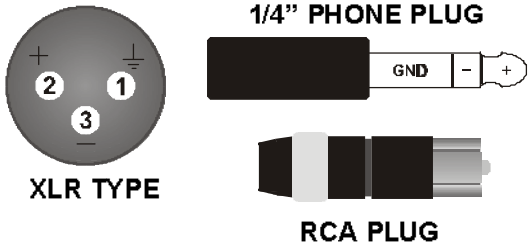
A/C power

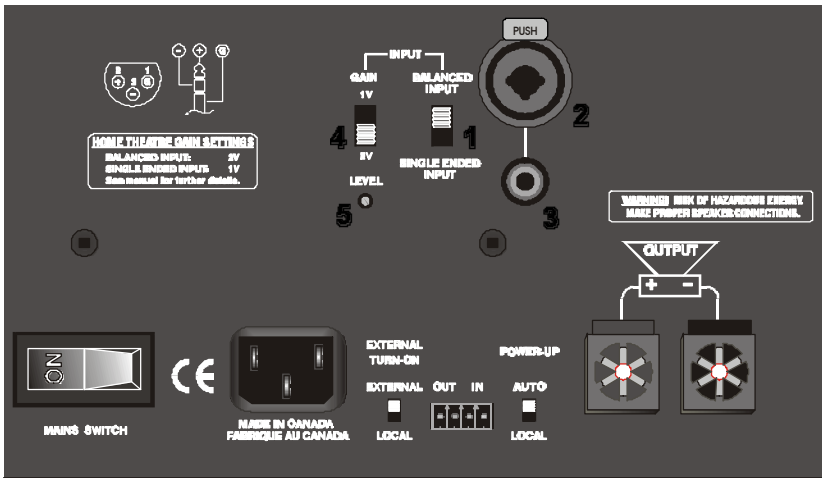
Before plugging in the power cord be sure your 7B SST amplifier is specified for the ***correct a/c voltage*** for your locality. The voltage is listed on the label found at the upper right of the rear panel. The circuit feeding the 7B SST should be sufficient so as not to cause the circuit breaker to trip (15 amp min). Note: the 7B SST when delivering maximum power into a 4 ohm load, will consume all the available power in a normal household circuit, therefore a dedicated electrical circuit may be necessary with this situation. Never lift the safety ground to the amplifier nor remove the ground pin from the plug.

Power line conditioners *will not* improve the 7B SST amplifier performance, in fact most of the time they restrict the flow of current to the amplifier, reducing performance at higher output levels

Rear Panel Input / Output Connections

Fig 1





1. Input Select Switch.
Each SST channel gives the user the option of switching between either balanced input or single ended input.

2. Balanced Input connector. (Imp. 20k)
This input connector accepts standard 'XLR' or 1/4" TRS .
Use quality, 100% shielded cables with *gold plated* connectors.

3. Single Ended Input. (Un-balanced input) (Imp. 50k)
This input connector accepts standard 'RCA' or 'Phono' connectors.
Use quality, 100% shielded cables with *gold plated* connectors.

Balanced input Vs Single ended input:
The balanced input requires a balanced pre-amp source. Balanced systems provide noise rejection from external electrical interference, so cable length can be very long (50m or longer).
The single ended or unbalanced input is provided for pre-amps without balanced output. Single-ended cables should be kept to 20' (7m) or less. In general never use longer cables than necessary, never coil excess cable length, and keep signal wires away from AC power or speaker cables.

4. Input Sensitivity (Gain) Switch.
The optimum gain setting will depend upon the source pre-amp operating level, and or personal preference.

The 1v setting is used when the source is *single-ended*, or from a transformer coupled *balanced* source.
This is the *home theatre* setting for *single ended* or un-balanced operation.
The 1v setting provides the most amplifier gain - 29 dB. (1v in = 100w @ 8 ohms.) (noise -110 dB)

The 2v setting is used when the sources output is actively *Balanced*.
This is the *home theatre* setting for balanced operation Or use this setting with any systems where the volume control rotation is limited to the bottom half of the control or less.
The 2v setting provides an amplifier gain - 23 dB. (2v in = 100w @ 8 ohms.) (noise -113 dB)

The noise is referenced in dB below rated output. Different input configurations result in slightly different noise readings. The above noise ratings represent minimum readings, actual readings may be better.

5. Level Control. (pro models only)
The level control will attenuate the input signal level from 0dB through -14dB.

6. Output binding posts.

The **RED** binding post is the ***in-phase amplifier output***. Connect to this post the (+) terminal on the loudspeaker.
The **BLUE** binding post is the ***inverted-phase amplifier output***. Connect to this post the (-) terminal on the loudspeaker.
Note: ***At no time should either output be connected to a ground, or chassis***. Failure of the amplifier may result.
Never connect either output in parallel with another amplifier.
The *minimum* recommended loudspeaker load is **4 ohms.**

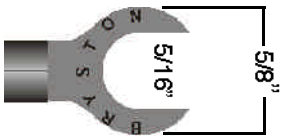
The Output binding posts provide three different interconnect options. Combinations may be used when bi-wiring. See figure 2 below. Cables should be kept as short as practical and should never be terminated with connectors that may become confused for AC power connectors. Cables should be dressed away from input and power cables.

1. *Banana plugs* offer a quick disconnect option. Before inserting a banana plug into the binding post be sure to tighten the post nut to avoid rattling and to provide full insertion of the banana plug. Gold plated locking banana plugs are available from Bryston.

2. *Spade lugs* provide high contact area and secure fastening. Lugs should be gold plated. See diagram for details. Post diameter is 5/16' (8mm), lug width 5/8" (16 mm). Gold plated spade lugs are available from Bryston.

3. *Stripped bare wire* up to 3 gage can be inserted through the hole in the binding post and held in place by tightening the post knob. Additional tightening pressure can be achieved using a **coin** in the slots of the knob. Do not over tighten or the binding post may become damaged. Note that copper wire is malleable and may require further tightening after the initial installation.

Spade lug dimensions



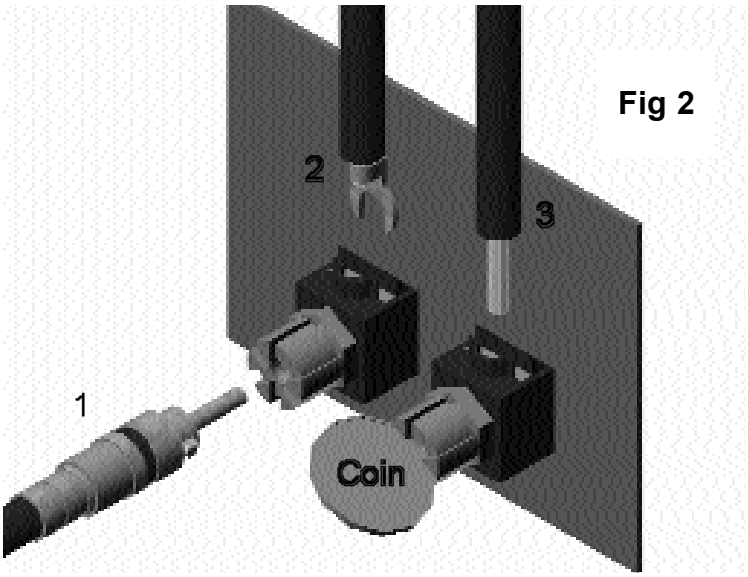


Fig 2

Front Panel

1. 'SST POWER' switch

The front panel label 'SST POWER', is a touch sensitive membrane switch used to apply or remove a/c line power to the soft start circuitry. Push firmly the center of the switch until the power-up sequence begins. Push again and the amplifier will power-down. (Note: the rear circuit breaker must be on for the amplifier to power-up)

2. LED Indicator

The 7B SST has an LED indicator to monitor the following conditions:

UNLIT -	indicates the amplifier has no power.
RED -	indicates the amplifier is muted (power-up)
GREEN -	indicates the amplifier operation is normal.
FLASHING RED -	indicates the amplifier clipping.
ORANGE -	indicates channel thermal shutdown.

Power up sequence

After pushing the 'SST POWER' switch, the LED will turn from unlit to red (mute). When the power supply has stabilized the amplifier will come out of mute and the LED will change to green (normal operation).

Unlit LED (No power)

The 7B SST LED when unlit indicates no A/C mains power is present and the amplifier probably needs only to be powered on or the rear panel circuit breaker is switched off.

Clipping (flashing red)

Clipping occurs when the channel output level no longer can follow the level increase at the input (Overdriven input condition). When the 7B SST is driven into clipping the LED will change from green to red then back to green when the level is reduced (Flashing Red). Momentary clipping can be tolerated, however it indicates that maximum un-distorted power has been surpassed and potential speaker damage may result if overload conditions persist. Any amplifier that is constantly operated into clipping indicates a more powerful amplifier is needed for that application.

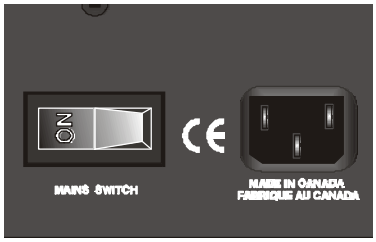
Thermal Shutdown (orange)

The 7B SST has thermal shutdown circuitry to prevent damage due to overheating.
Should thermal shutdown occur, the amplifier will mute, and the LED will turn orange indicating this condition. When the amplifier has cooled to a safe operating condition the 7B SST will return to normal operation.
Persistent Thermal shutdown indicates steps need to be taken to increase airflow across the heat sink. (Also see installation section on ventilation).

Power Control

1. Master circuit - breaker.

The 7B SST amplifier uses a magnetic-trip circuit breaker (1) to protect the amplifier. This switch should be 'OFF' during installation. When switched 'OFF' all A/C power is removed from the amplifier, including standby power.
The circuit breaker is not the power switch and should be switched to and left 'ON' after the installation is complete. Use the "SST POWER" switch or an external control voltage to Power-up or Power-down the amplifier.
Should the breaker trip, lower or remove the amplifier input signal. Switch the breaker to the 'ON' position. Then power the unit up normally.
The circuit breaker must be 'ON' at all times for the 7B SST amplifier to operate.



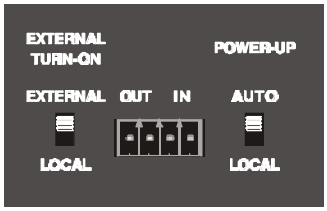
1 2

2. AC power input.

On the rear panel is provided a high current plug for the power cord receptacle. Check that the voltage rating on the label conforms with your locality. With the circuit breaker 'OFF' insert the power cord into the 7B SST amplifier, then plug the other end to an appropriate A/C power outlet.

3. Power-Up (Local / Auto switch.)

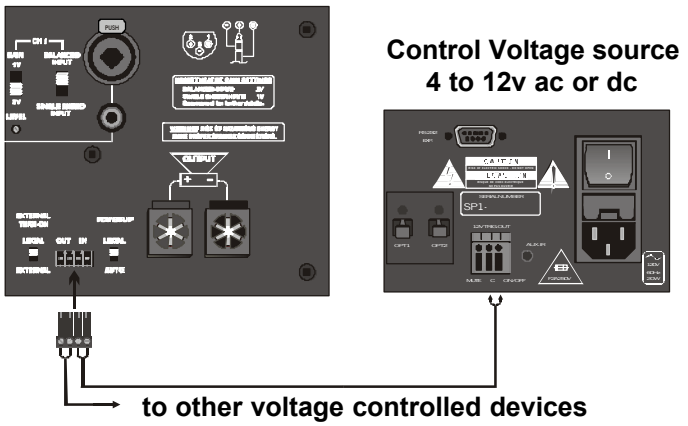
A. In "Local" position either the front panel 'SST POWER" switch or an external voltage controls the power-up of the 7B SST amplifier.
B. "Auto" is used when the 7B SST amplifier is powered from a switched power outlet. The 'SST POWER' switch and / or control voltage will function normally after the initial power up.

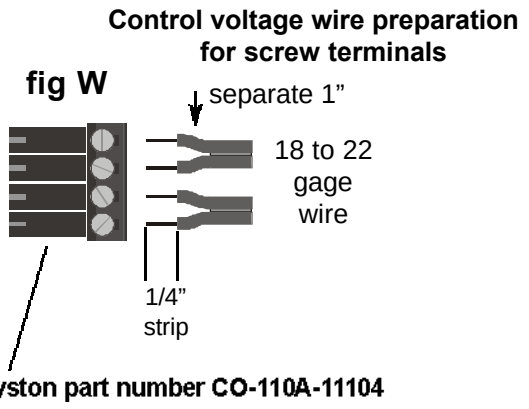


4 3

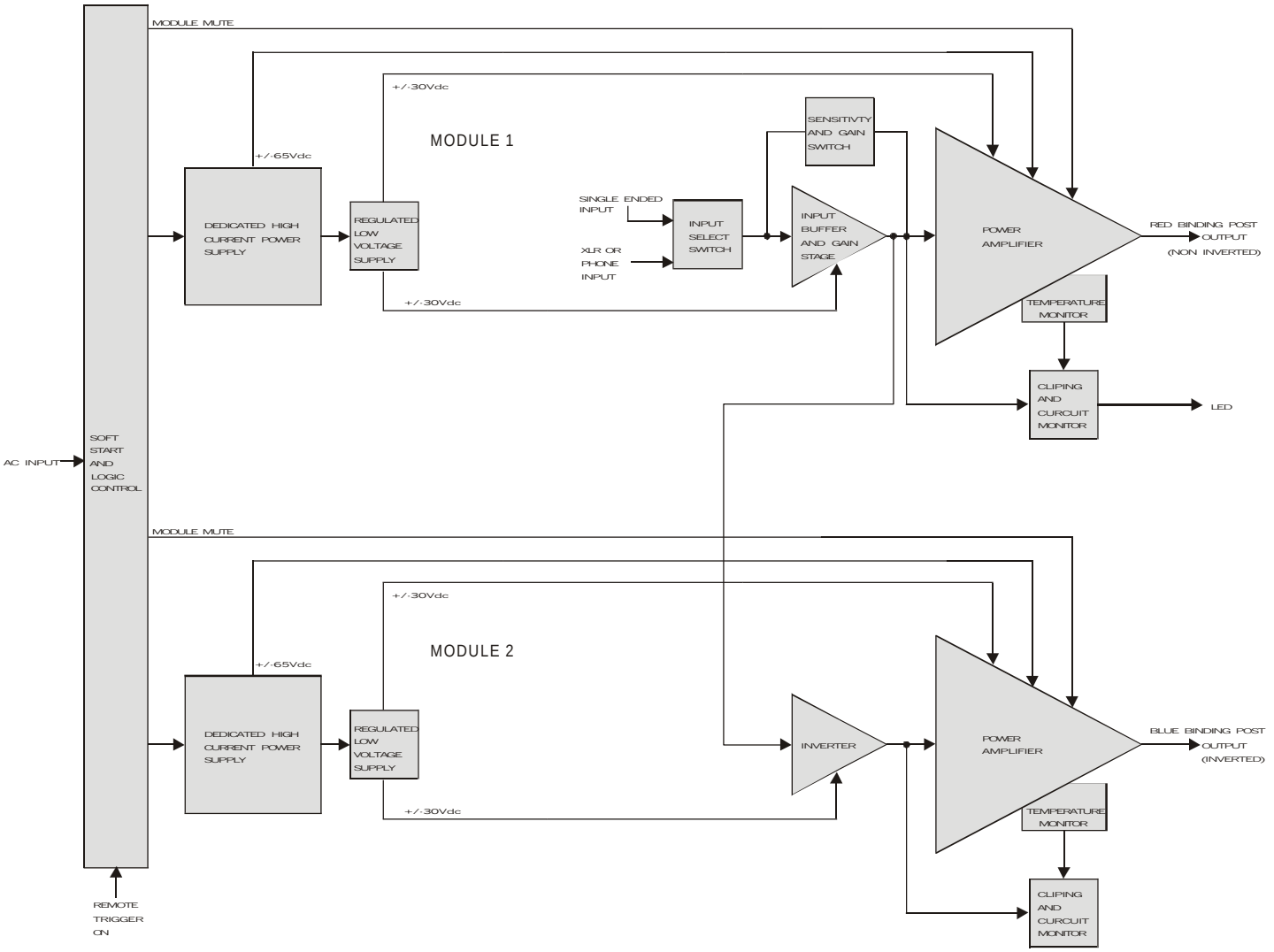
4. External control voltage power up (Local / external switch.)

A. To power-up the SST amplifier using an external control voltage,
Supply a 4v to 12v A/C or DC control voltage to the 'IN' terminals of connector (5).
Use paired wire of 22 to 18 gage sufficient in length between the source device and the SST amplifier. (see 'W')
Select switch (**4**) to "**External**". The amplifier will now power-up only when the control voltage is present (on).
Immediately following power up, the control voltage will appear at the 'OUT' terminals of connector (5) for the control of other equipment.The removal of the control voltage (0v) causes the amplifier to turn 'off' and the control voltage at the 'OUT' terminals is interrupted.
B. In the"**Local**" setting of switch (**4**) the 7B SST amplifier will ignore the control voltage, and power up only by using the front panel 'SST POWER' switch, or as in section 3 above. If a control voltage is present at the 'IN' terminals it will still be available at the 'OUT' terminals after the power-up sequence.

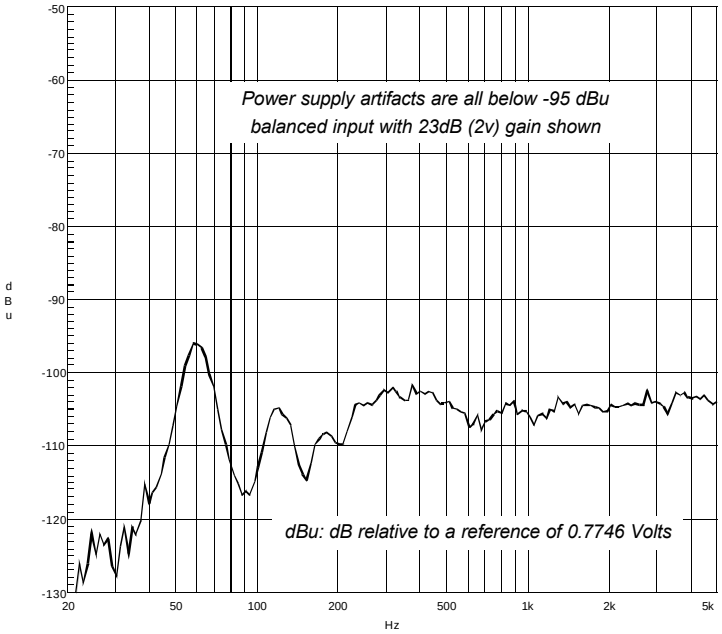




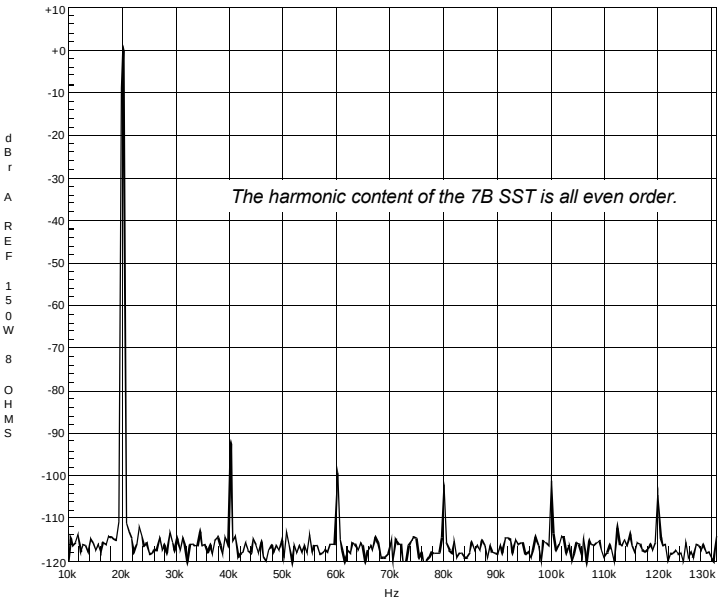
Note:
The 'OUT' terminals are connected to the 'IN' terminals once the 7B SST amplifier has powered-up.
The control current is determined by the **source** equipment. The carrying current of the 'OUT' relay is 2 amps.
The 7B SST control circuitry itself draws less than 2 mA from the control current when operating.


MODULE MUTE
+/-30Vdc
MODULE 1
+/-65Vdc
SENSITIVTY AND GAIN SWITCH
DEDICATED HIGH CURRENT POWER SUPPLY
REGULATED LOW VOLTAGE SUPPLY
SINGLE ENDED INPUT
XLR OR PHONE INPUT
INPUT SELECT SWITCH
INPUT BUFFER AND GAIN STAGE
POWER AMPLIFIER
RED BINDING POST OUTPUT (NON INVERTED)
TEMPERATURE MONITOR
CLIPING AND CURCUIT MONITOR
LED
AC INPUT
SOFT START AND LOGIC CONTROL
MODULE MUTE
+/-30Vdc
MODULE 2
+/-65Vdc
DEDICATED HIGH CURRENT POWER SUPPLY
REGULATED LOW VOLTAGE SUPPLY
INVERTER
POWER AMPLIFIER
BLUE BINDING POST OUTPUT (INVERTED)
TEMPERATURE MONITOR
CLIPING AND CURCUIT MONITOR
REMOTE TRIGGER ON

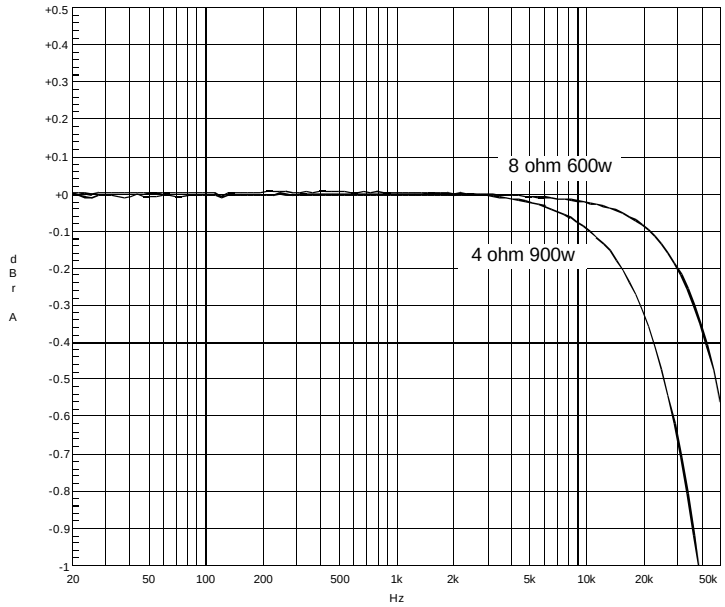
Typical Band-pass Noise



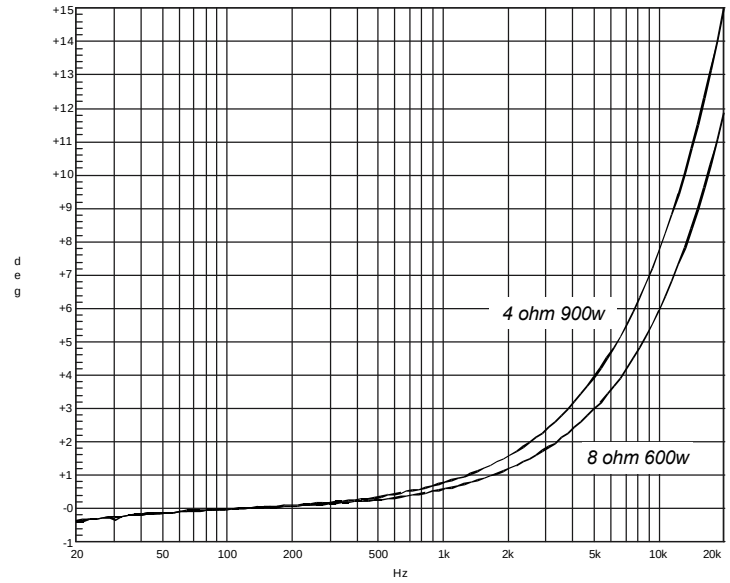
Typical THD+N Harmonic Content



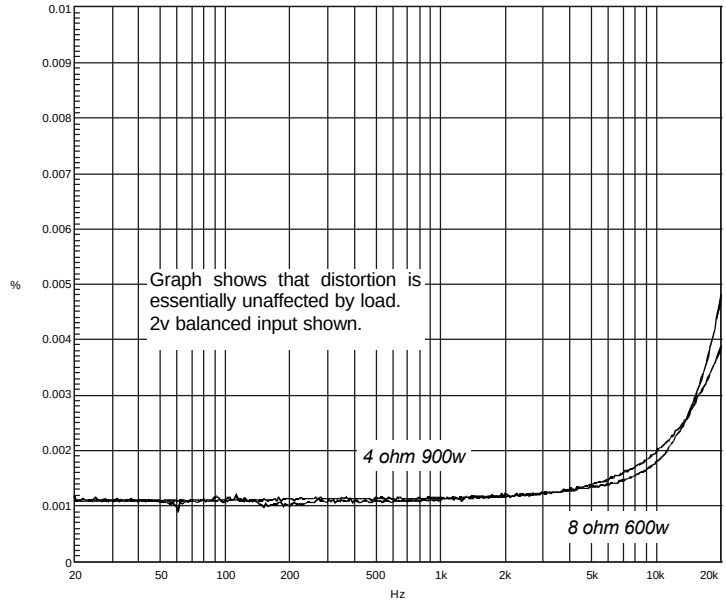
Typical Frequency Response 7BSST



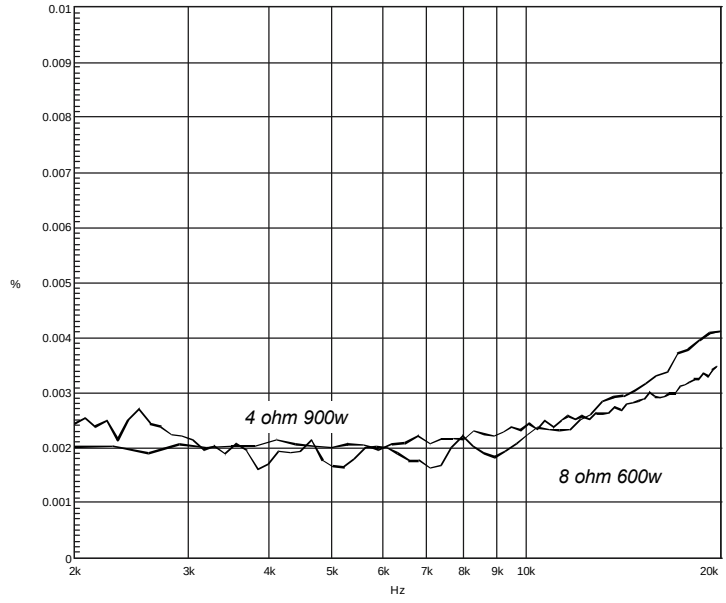
Typical Phase Response



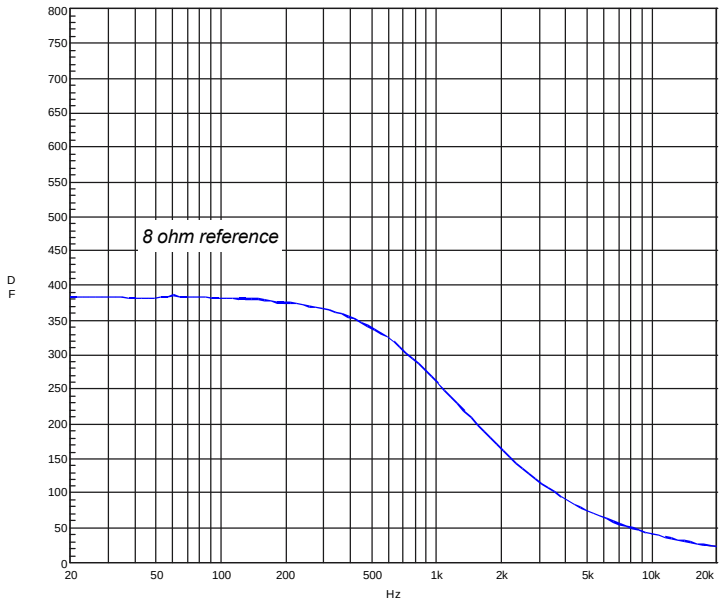
Typical THD+N Sweep



Typical IMD Sweep



Damping Factor



Technical Specifications

Power Output

600 watts per channel into 8 ohms
900 watts per channel into 4 ohms

Gain Select and Sensitivity

29dB - 2.3Vin = 600W @ 8 Ohms - (1V Position)
23dB - 4.6Vin = 600W @ 8 Ohms - (2V Position)

Input Impedance

50 Kohms single ended
20 Kohms balanced

Distortion IM or THD+noise

< 0.005% 20Hz to 20kHz at 600 watts into 8 W
< 0.007% 20Hz to 20kHz at 900 watts into 4 W

Noise Measured with input shorted - 20Hz to 20kHz.
>110dB below rated output 29dB gain (- 75dBu)
>113dB below rated output 23dB gain (- 78dBu)

Slew Rate > 60 volts per microsecond

Power Bandwidth < 1 Hz to over 100 kHz

Damping Factor Over 300 at 20 Hz, ref. 8 ohms

Dimensions - L x H x D

19" version with handles
48.3 x 13.3 x 32cm - 19" x 5.25" x 12.5"
mounted rack depth - 28cm - 11.0"

17" version
43.2 x 13.3 x 28cm - 17" x 5.25" x 11"

Weight: approx. 22kg - 50 lbs

Power Consumption & Heat Load

At Idle -	215 Watts
Max. Heat Dissipation -	733 Btu/Hr.
output @ 600W @ 8 ohms -	1284 Watts
Max. Heat Dissipation 8 ohms -	2333 Btu/Hr.
output @ 900W @ 4 ohms -	1980 Watts
Max. Heat Dissipation 4 ohms -	3684 Btu/Hr.

BRYSTON 20 -YEAR WARRANTY

Bryston products are warranted to be free from manufacturing defects for a minimum of twenty years from the original date of manufacture. This includes parts, labour and return shipping to the first owner and all subsequent owners. Warranty coverage is automatic and commences with the original date of manufacture which is kept on file at Bryston.

In the event of a defect or malfunction, Bryston will remedy the problem by repair or replacement, as we deem necessary, to restore the product to full performance.

This warranty is considered void if the defect, malfunction or failure of the product or any component part was caused by damage (not resulting from a defect or malfunction) or abuse while in the possession of the customer. Tampering by persons other than factory authorized service personnel, or failure to fully comply with Bryston operating instructions, voids the warranty.

This warranty gives you specific legal rights and you may also have other rights which may vary from province to province and country to country.

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FAX: 802-334-6658

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FAX: 705-742-0882

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